Adriplet of Inventions.
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# TRIPLET of INVENTIONS,

CONSISTING OF

#### A DESCRIPTION of

A

NOCTURNAL OR DIURNAL

# TELEGRAPH;

A PROPOSAL for

# AN UNIVERSAL CHARACTER;

AND

#### ASCHEME

FOR FACILITATING

## THE PROGRESS OF SCIENCE,

Exemplified in the Ofteological Part of Anatomy.

By THOMAS, NORTHMORE, Efq. M. A. F. S. A.



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AND

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In tenui labor, at tenuis non gloria; si quem Numina læva sinunt.



#### TO MY FRIEND

# WILLIAM BURDON, Esq.

Fellow of Emanuel College, Cambridge:

" Parturiunt montes; nascetur ridiculus mus.

" IN your translation of Plutarch's

"Treatise on the Distinction between

" a Friend and a Flatterer, you figni-

" fied your intention of publishing the

" original with notes; and now for-

", footh! you present us with nothing

" but two stale inventions, and an

"Eutopian prodigy." Have patience, my excellent Northumbrian, all in good time; existing circumstances are materially changed, and man, you know, is a creature of circumstances,

" a

"a recipient of perceptions." I now therefore beg your acceptance of these trisles, they may serve to relax your mind from severer studies; I wish, in relaxing your mind, they could in the least contribute towards a restoration of your health.

Two of the following inventions, viz. the Telegraph and Universal Character, have, as you know, already appeared in public, during the course of last year, in the Repertory of Arts and Manufactures. To the latter of them I have added nothing new; to the former only an abridged translation of a passage in Polybius. Indeed from the resemblance of the French Telegraph to that of Polybius, as far as relates to the end in view, I am almost inclined to believe that the author of the former was led to turn his thoughts

to the subject from an acquaintance with the latter, more particularly as Rollin in his Ancient History has given a copious account of it. Bethat as it may, I am firmly persuaded that if a man of sense were attentively to peruse the various inventions of the Ancients, with the view of selecting such of them as appeared to him of importance, and were to prefent them to the public in a modern drefs, he would produce a work of confiderable utility. It is really aftonishing how many useful inventions now lie dormant amid the old Greek Scholia,

How many a flower is born to blush unseen, And waste its sweetness on the desert air.

Permit me to conclude this letter with an example of a contrivance much in use among the Spartans. It was called the Scytale, and may be thus described from from Plutarch and Suidas. When the magistrates of Sparta wished to convey any intelligence of importance to the General of their armies, they used to wrap a long narrow flip of parchment round a staff in so regular a manner as to leave no interstice. Upon this they wrote their orders. The parchment was then unwound, and fent to the General, who, having another staff of exactly the same dimensions, applied it in the same manner, and thus those characters which were before without shape or connection became perfectly legible.

### V. V.

THO. NORTHMORE.

CLEVE, Jan. 25, 1796.

#### DESCRIPTION

# OF A NOCTURNAL OR DIURNAL TELEGRAPH.

THAT the French Telegraph is an invention justly intitled to the praise of ingenuity and simplicity, is certain; yet it appears to me to labour under a defect that takes much from its utility; I mean that it is not calculated to convey intelligence by night. It was this defect that first induced me to turn my thoughts to the subject; whether successfully or no, the reader may determine.

But before I proceed, I beg leave to obferve that the Telegraph, new as it appears, is new only in name; the invention is of very ancient date; for Polybius, who flourished near 2000 years ago, gives an accurate curate account of a nocturnal one, which he himself had improved, and of which the following is an abridgement.

He begins by observing, that as opportunity is of great consequence in all human affairs, fo is it especially in war, and of all the various inventions that have contributed to its attainment, none has been of fuch fervice as that of figuals by fire. But this contrivance is in some measure rendered useless by reason of its too great simplicity; every circumstance must be agreed upon before-hand; if therefore, out of the infinite variety of human concerns, any event should happen unprovided for, fuch a method would be of no avail. remedy this defect, continues Polybius, let the whole alphabet be distributed into five columns, each of which, except the last, will contain five letters. These columns are then to be fixed upon five tablets of wood; and the parties who are to give and receive the intelligence are to agree upon the fignal of being prepared, which we will fuppose

This fignal being answered, the torches are then lowered. The person who gives the intelligence is now to elevate such a number of torches on the *left* hand, as shall correspond to the number of the column or tablet in which the first letter of the intelligence is to be found; for instance, if it be in the first column, he will lift up only one torch; if in the second, two; and so on. The same thing is then to be done on the *right* hand, to signify the particular letter of the column.

To illustrate the above by a familiar example, suppose the intelligence conveyed to be, that the French fleet of thirty sail of the line were off Maker: the sentence must first be abridged thus, French, thirty sail, off Maker. The letter F being the first in the second tablet, two torches must be elevated on the lest, and one on the right. The letter R being the third in the fourth tablet, there must be four torches raised on the lest, and three on the right,

B

and so on. In order to distinguish the right from the left, a geometrical instrument containing two tubes was made use of.\*

It is not my intention to enter further into detail; fuffice it to fay, that from this account of Polybius I received a hint, which furnished the ground-work of what I am now going to present to the reader.

<sup>\*</sup> See Polyb. Hist. lib. x. p. 261-6. Edit. Ernest. The English reader may consult Rollin's Ancient History, book xvii. sect. vi.

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# A Nocturnal or Diurnal TELEGRAPH.

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For a NoEturnal Telegraph, let there be four large concave reflecting lamps, each containing the greatest quantity of light possible; let them be placed on the top of an observatory, parallel to the horizon, and lying on the same plane. Let each of these lamps be capable, by means of a winch, either of elevation or depression to a certain degree. By elevating or depressing one or two of them a great variety of arrangements will be produced, as the annexed fcheme will explain, taking care that each lamp be restored to its place after every arrangement. In the first and last observatory there need only be a fet of fingle lamps, but in the others each must be double, fo as to face both the preceding and fubsequent observatory; and every observatory should be furnished with two telefcopes. The proper diameter of the lamps, and their distance from each other, cannot be ascertained but by experience, and will vary according to the distance of the obfervatory.

B 2

I have fixed on four lamps, as being the number that appears best to unite simplicity and perspicuity.

To convert this machine into a Diurnal Telegraph, nothing more is necessary than to insert, in the place of the lamps, gilt balls, or any other conspicuous bodies.

I cannot conclude without again submitting to the consideration of government and the lottery-offices, whether it would not be desirable to establish a communication of this kind between London and Dublin, viâ Donaghadee and Port Patrick.



Proposal for an Universal Character.

# PART I.

WHEN I first committed to paper my thoughts upon the following subject, I had not even the most distant suspicion that any thing similar to them had ever before appeared in public. I afterwards sound, and, in my second letter to the Repertory of Arts and Manusactures dated June 1795, mentioned an extract from the Journal litteraire, anno 1720, which seemed to bear some resemblance to what I had proposed; but of this the reader shall judge presently. I will previously beg permission to state the progress of my own ideas upon the subject.

I originally called this invention a Pangraph, or a mode of writing by which the various nations of the earth may communicate their sentiments to each other. This appellation

lation appeared to me the most suitable, being at that time little aware of the facility with which the character might be spoken, and consequently become, as far as regards the common concerns of life, an universal language. The want of such a medium has long been a subject of lamentation among men of letters; hence the various plans that have been proposed by Bishop Wilkins, Leibnitz, and others, which, if I may be allowed an opinion, have failed of fuccess chiefly by reason of their being too complex and difficult of attainment. That mine will be more fuccessful I do not promise myself; I can only fay that I have studied simplicity.

The original thought that occurred to me, and which is the ground-work of the whole super-structure, is the following; "That if the same numerical figure be made "to represent the same word in all lan-"guages, an universal medium is immediately obtained." This I mentioned to a few friends, who agreed with me in the

the practicability of it, and saw only one objection, viz. that which originated from the diversity of idioms. But this object tion furely cannot be thought of much weight, when we confider that every school-boy has daily to encounter it in construing his Terence. If a foreigner write to me, he of course will study plainness of language, and I must be dull indeed, let his idiom vary ever so much from my own, if I cannot make out common fense when I have every word before my eyes. Such was my original thought, but it was foon perceived capable of improvement; for instead of using a figure for every word, it will be necessary to apply one only to every useful word; and we all know how few words are absolutely necessary to the communication of our thoughts. These too may be much abbreviated by the adoption of certain uniform fixed figns, to express the various cases, numbers, genders, degrees of comparison, of nouns; tenses, and moods of verbs, &c. Words of negation, diminution,

nution, excess, &c. may also be expressed by prefixed signs. A few examples will more fully explain my meaning.

Suppose a numerical dictionary, adapted to a variety of languages, already in use. Let what follows be an extract from it.

The number 8 represents the word I

10 - - day

present tense indicative mood of the verb, to be

16 - - place

17 - - corrupt

19 - - this, that

23 - - who, which

26 - - make

27 - - wisdom

29 - - nothing

30 - - natural

32 - - beautiful

35' - - Slave

37 - - man

39 - - near

The

# [ 17 ]

The number 40 represents the word virtue.

45 - - liberty

48 - - take away

50 - - worth, value

53 - - bis, hers, their

59 - - amiable

61 - - balf

70 - - than

71 --- without

75 - - brute.

We will now suppose that in the preface to the above dictionary the nature and power of the prefixed signs are explained with clearness and brevity. Take an example.

The number 48 represents the indicative mood present tense of the

verb - - take away

.48 perfect tense took away

:48 perfect par-}taken away

48: present parti- }taking away

48. future - - will take away

C

48 potential mood

37 nominative & accufative case a man of the noun

37 genitive - - of a man

37 dative - - to a man

37 feminine - - a woman

+37 plural - - men

59 positive - - amiable

59 comparative more amiable

59 superlative - most amiable

— 59 negation - - unamiable.

How many figns may be necessary I will not take upon me to determine, it being my opinion, expressed in my second letter to the Repertory, that the best method of bringing any matter of this fort to perfection, is to lay it before a company of literary men. I shall now present the reader with a few sentences written in this character, and explained in the above extract.

29, 13, 32, 70, 27; 29, 59, 70, 46.

Cicero.

There would be no difficulty in comprehending the above specimen, though it were written in the language of the Chinese.

"Nothing is more beautiful than wisdom, "nothing more amiable than virtue."

71, +37, +8, .13, +75. Otway. "Without women we should be brutes."

30, 16, 40, 13, 39, 45. Montesquieu. "The natural place of Virtue is near to Liberty."

10, 23, 26, +37, +35, 48, 61, 53, 50.

Homer.

This fentence is left for the reader to find out. It may be worth while to observe that those languages which do not express the pronoun before the verb, as the Greek and Roman, may apply it, in a smaller character, simply to denominate the person; thus, instead of +8, .13, in the second instance, we should be; it might be written +8.13, which will signify that the verb is

 $C_2$ 

in the first person, and will still have the same meaning.

The specimen here presented to you, Reader, is merely a rough sketch of my design, and I purposely leave it impersect that others may have an opportunity of suggesting their improvements. I shall therefore conclude this sirst part of the Universal Character by observing that, in my opinion, five or six thousand select words, properly arranged in a small numerical dictionary, would answer all the ends proposed. I am led to adopt this opinion, because not only synonimous words might be omitted, but also derivative adverbs, &c. which might be expressed by means of the presixed signs.



# Proposal for an Universal Character.

#### PART II.

NOW come to that part of the Universal Character which relates to its being *Spoken*, and the facility with which this may apparently be performed is extraordinary.

First then, the ten numerals should be accurately distinguished by ten simple names: these I would recommend to be monosyllables, easy of pronunciation in all languages, and, if possible, they should be so contrived as to run without difficulty into one another. For the present I will call them by the common English terms, though I have no doubt that imaginary appellations ought to be preserved.

Secondly, I would pronounce each numeral by its component parts, after the manner of accomptants. Ex. gr. Let the number 5943 represent the word Horse; I would not say, five thousand nine hundred and forty

forty three, but more fimply, thus, five, nine, four, three, and fo through a whole fentence, making the proper stop between each of the words.

Thirdly, in the same manner to each of the prefixed signs a distinct appellation must be appropriated, to be pronounced immediately after the numeral to which it is an appendage. For instance; let the monofyllable plu be the appellation or fign of the plural number; five, nine, four, three, plu, would become borfes. But this method may be much abridged in the following manner. For supposing the signs to amount in number to forty; then instead of appropriating a distinct appellation to every fign, I would substitute for them the first forty numerals, and fay, as in Algebra, that a term is in the power of fuch a number, which may be expressed by the word under, or fome other more fimple denomination. Ex. gr. Let 5943 represent the word borse, and let 4 be the sign of the plural number:

number; I would write the word thus,  $\frac{4}{59+3}$ , and pronounce it five, nine, four, three, in the power of, or under, four. By these means eleven or twelve sounds would be all that were required, and time and use would much abbreviate the pronunciation.

Thus, Reader, have I briefly laid before you the progress of my ideas upon this interesting subject, upon which I have thought it unnecessary to enlarge for reasons already stated; but I cannot in justice conclude without observing that, some little time after the publication of my first letter in the Repertory of Arts and Manufactures, on reading the Encyclopædia Britannica, article Character, vol. iv. p. 337, I met with an extract from the Journal Litteraire, anno 1720, the author of which had proposed the Arabic, or numeral figures, for Universal. Characters. "The combination of these " nine (he observes) are sufficient to ex-" press distinctly an incredible quantity of " numbers, much more than we shall need "terms to fignify our actions, goods, evils, "duties,

"duties, passions, &c." From which and what follows, it appears to me (who have no opportunity of seeing the original) that the author meant, in the same extensive sense as Wilkins and Leibnitz, that his characters should, in an unlimited degree, and without any intermediate assistance, represent things; and consequently the difficulty of attaining them, notwithstanding the universality of the character itself, is not much, if at all, diminished. With respect to the pronunciation of his character, he seems totally to lay it aside.

I shall now conclude with the same observation that I have made elsewhere, that
I have thought it right to mention this circumstance, as, if my readers shall so determine, I am very willing to forego the
claim of originality, provided I can contribute in the least either to their amusement, or to their advantage.

Proposal for facilitating the Progress of Science, exemplified in the Osteological Part of Anatomy.

A modern Author in his Eutopian System of Government established at Makar, has enacted among other laws, "that "all sciences be freed from abstruse terms, "which are now the clog to education." Upon this he makes the following observation in a note subjoined. "What is the "reason that sciences are so difficult of attainment? One of the reasons is, because they are inveloped in a mass of unintelligible names. If in lieu of the

D "Greek,

"Greek, Latin, and fanciful appellations "with which Astronomy, Anatomy, Bo-"tany, Chemistry, &c. are at present sur-"rounded, (and which constitute, as it "were, a monopoly of those sciences to " the Grecian and Roman) they were illuf-"trated by plain English terms that con-"vey meaning, to how much greater per-" fection would those sciences speedily ar-"rive? And again, p. 132-3, "Greeks and Romans, from whom most " of our knowledge is derived, very natu-" rally and wifely gave appellations in their "own tongue to their various improve-"ments and discoveries. The greatest " part of these appellations European na-"tions religiously adhere to, so that the " modern student is under the necessity of "cultivating the Greek and Roman lan-"guages previous to his acquisition of "this or that science. Nor is this all. Se-" veral of the original appellations being "proved by subsequent discoveries to be " abfurd and fanciful, the student has to

" wade through additional difficulties to "understand whence they originated."-The author has not given the public any specimen of what he alludes to, but has left that for his friend to do. I would not however have the reader hastily suppose by what I am now writing, that I am an enemy to all terms of art. No! I readily fubscribe to the observation of Judge Blackstone,\* that "terms of art there will "unavoidably be in all fciences." All I infift upon is, a simplification of those terms, and that, as we have fo copious a language, and one fo "well adapted to "compound expressions," there is no occasion (at least so frequently) to recur to foreign tongues.

The specimen which I have chosen is taken from that part of Anatomy which relates to the bones of the human frame, and I have arranged the new and old Vocabulary opposite each other that the D2 Reader

<sup>\*</sup> Commentaries. Book iii. ch, 17.

Reader may be better able to judge whether my scheme is likely to answer the end proposed.\*

\* Perhaps it will here be objected to me by some of the censorious witlings of the age, "that I am medling " with things of which my knowledge cannot possibly be "any other than superficial. What, for instance, have "the duties of a Country Justice to do with the study of Anatomy?" Very little, alas! I confess. But perhaps it will gratify the curiofity of these men, at least it will blunt the force of their accusation, to be informed that, independent of my having received much pleasure from the study of Anatomy, which I once pursued at Cambridge under the Anatomical Professor, Dr. Harwool; I have also taken the precaution of submitting what I had to fay upon the subject to the judgement of a Friend and an Anatomist, the excellence of whose mind, and the virtues of whose heart, I shall hope at all times to revere. His modesty alone forbids me mentioning his name. But even without this precaution, much as I have been advantaged by it, I should not have been daunted, it being a principle with me, that a good education confifts in an accurate knowledge of one thing, and an acquaintance with many things. Senfible men too would perhaps have pardoned my errors, satisfied that I had endeavoured well; and men without sense are not now to learn that their censure is applause.

#### NEW VOCABULARY.

#### OLD VOCABULARY.

Forehead bone

Side head bones, right and left, and so in all other cases of two similar corresponding bones

Hind head bone
Temple bones
Central head bone
Upper olfactory nerve
bone, or
Upper internal nafal

bone
Cheek bones
Upper jaw bones
External nafal bones
Nafal division bone
Eye corner bone
Palate bones
Lower olfactory nerve bones, or

bones
Lower jaw bone
Teeth
Front teeth

Lower internal

Dog teeth, or pointed teeth, commonly called eye teeth

Os frontis

Ossa parietalia

Os occipitis Offa temporum Os spencides

Os eibmoides

Ossa malarum
Ossa maxillæ superioris
Ossa nasi
Vomer
Ossunguis
Ossa palati

Ossa spongiosa inferiora

Os maxillæ inferioris
Dentes
Incifores;

Canini;

#### OLD VOCABULARY. NEW VOCABULARY.

Grinders Molares,

Bicuspides,

Tricuspides.

Wise teeth, or late grinders

Dentes sapientiæ

Tongue bone

Os byoides

Appendages, right and

Cornua parva seu appendices

Ear bones

Malleus

Outward, or long drum ? bone

Incus

Middle drum bone

Os orbiculare

Little drum bone

Stapes

Inner drum, or stirrup bone

Spina

Spine bones

Vertebræ

1st, 2d, 3d, &c. to 24th

7 cervicales

12 dorsi

5 lumborum

Great, or lower spine bone

Os facrum

Little, or lowest spine bones

Os coccygis

Breast bones

Sternum

Upper

Middle

Extreme

Cofta

Ribs 1st, 2d, 3d, &c.

Tun veræ, tum falsæ

Cartilago ensiformis

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#### NEW VOCABULARY.

## OLD VOCABULARY.

Hip bones
Superior
Inferior
Anterior
Shoulder blade
Collar bone
Upper arm bone
Long lower-arm bone
Short lower-arm bone
Wrist bones
First or arm row
ıft
2d
3d -
4th
Second, or hand row
1 it
2d
3d
4th
Hand bones
1 ft
2d
3d
4th

Ossa innominata
Ossa ilium
Ossa ischii
Ossa pubis
Scapula
Clavicula
Oss humeri
Ossulnæ
Radius
Ossa carpi
Oss scaphoïdes

Os scaphoides
Os lunare
Os cuneiforme
Os pisiforme

Trapezium
Os trapezoïdes
Os magnum
Os unciforme
Ossa Metacarpii
1m. seu indicis
2m.
3m.
4m.

Finger

#### NEW VOCABULARY. OLD VOCABULARY.

Finger bones

First of 1st, or fore-finger

Middle of ditto

Extreme of ditto

So of the long, or mid-

dle finger

The third, or ring finger

The little finger, called by a French author

auriculaire

Thumb bones

First

Middle

Extreme

Thigh bone

Knee pan

Great leg bone

Little leg bone

Upper foot bones

First

Middle

Anterior

1st, or internal

2 d

3d

4th, or external

Heel bone

Os primæ phalangis indicis

Secundæ phalangis

Tertiæ phalangis

Digiti medii

Digiti annularis

Digiti minimi

Os primæ phal: pollicis

Secundæ

Tertia

Os femoris

Patella

Os tibiæ

Fibula

Tarsus, excepto osse calcis

Astragalus

Os naviculare

Os cuneiforme internum

Os cuneiforme medium

Os cuneiforme externum

Os cuboides

Os calcis

Lower

# NEW VOCABULARY. OLD VOCABULARY.

Lower foot bones	Ossa metatarsi
ift ; each i	1m. seu pollicis pedis
2d	2m.
3d	3m.
4th	$\Delta m$ .
5th	5m.
Great, or first toe bones	Ossa pollicis pedis
iff	Os primæ phalangis
2d .	Os secundæ phalangis
Toe bones	3 377
Ist of 2d toe	Os primæ phalangis secun-
	di digiti pedis
Middle of ditto	Os secundæ phalangis
Extreme of ditto	Os tertiæ phalangis
And so of the 3d, 4th, and	,
5th, or little toe	
Supernumerary bones, 7	Ossa triquetra
adding the name of	Sefamoidea
the adjacent bone.	Et ejusmodi.

How whimfical were the appellations anciently given to the bones of the human frame, and now preferved with religious reverence by posterity, the English reader may judge from a few specimens. One of the fossæ of the os Spenoïdes, or wedge-like

like bone, (and which I have denominated from its situation, central bead bone) has been called Sella Turcica, because it was supposed to resemble a Turkish saddle; but of the propriety of this appellation I should conceive that few students in anatomy are able to judge. The Ossa unguis are so called, on account of a supposed similitude to a finger nail; but the other name given to them, viz. Lachrymalia, is certainly preferable. OS Hyoïdes, from its being thought like the Greek letter v. OS Coccygis, the bone of the cuckow, because it was imagined to refemble the beak of that bird. Clavicula is faid to be fo called from its fimilitude to the key in use among the Ancients. Radius, the spoke of a wheel. Scaphoides, boat-like. Pisiforme, pea-like. OS tibiæ, from its resemblance to the ancient pipe, &c. &c.

Where names are given so unlike the things named, it is no wonder that the progress of science is slow. Such whimsical denominations serve only, as Black-stone

stone says, "to breed a confusion of ideas, "and a kind of distraction in the memory."

The advantage then expected to be derived from the foregoing scheme is briefly this; that students, particularly the junior class, finding the access to science more plain and easy, will be encouraged to proceed; consequently Science, having a greater number of followers, will be more likely to be brought nearer to perfection. The numbers of young men who forsake the paths of knowledge, intimidated by the difficulties in their road, are greater than generally imagined. Cambridge, Oxford, the Temple, and Lincoln's Inn, annually bear ample testimony to what I have advanced.

Thus, Reader, have I presented to you my favourite scheme for facilitating the progress of knowledge, not indeed according to my wishes, but according to my abilities, and will now, for a short time at least,

least, take my leave of you, with the request of the Moralist;

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